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GEOLOGIC AND MINERAL AND WATER RESOURCES INVESTIGATIONS  
IN WESTERN COLORADO, USING SKYLAB EREP DATA

Monthly Progress Report

October 1974

EREP Investigation 380

Contract NAS-13394

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## INTRODUCTION

The primary objective of the CSM Skylab Program is to analyze EREP data for geologic information. To this end, the research has been subdivided into the following tasks;

- Task I. The PI shall assist NASA/MSC in mission planning activities related to the proposed investigation.
- Task II. The investigator will screen all EREP data obtained over Colorado and will select frames for detailed study.
- Task III. The investigator will prepare photogeologic maps using selected S-190 photographs, and will analyze them to determine what geologic information may be contained in them.
- Task IV. The geological interpretations obtained in Task 3 will be compared to interpretations obtained from S-192 imagery, and to interpretations made from ERTS-I imagery.
- Task V. The geological interpretations will be verified by means of interpretation of aerial photographs, published geological reports, and field observations.
- Task VI. The investigator will prepare recommendations for the optimum type, scale, and resolution of imagery to be used for studies of regional geology and exploration for mineral deposits and water resources.

## Progress

### Overall Status

With this report Milestones 1 through 25 have been achieved, with the following exceptions: Milestones 18, 20, 23 and 26 are in progress, and will extend through the duration of the extended contract period. Milestones 14 and 16 were completed during October. At this time the milestone plan formulated at the beginning of the contract is no longer valid; continuation of milestones 18, 20, 23 and 26 will ultimately lead to the final report at the end of the contract.

### Past Month's Activities

During October, the final indexing of Skylab 2, 3, and 4 data received at Colorado School of Mines was completed. This index of received Skylab data is appended to this report. In the Central Colorado mineral deposits study, reconnaissance field work in the Cripple Creek secondary test site indicates that major linear orientations coincide with fault and fracture trends in the Precambrian Pikes Peak granite. The major color anomaly centered in the secondary test site is a massive outcrop of Pikes Peak granite. The color anomaly stems from the fact that this is the only sizable vegetation-free area in the region, and approximately 50% of the rock is composed of microcline.

Work is in progress on updating the two papers presented at the Tennessee Institute in the Spring of 1974, for submission to more widely-circulating professional journals. The paper on lineament shadow enhancement is targeted for submission to Photogrammetric Engineering, and the paper on the utility of space data for geology will be submitted to the GSA.

Intensive photointerpretation of Skylab S190B color photos over southeastern Utah-southwestern Colorado was conducted during October. In the area around Moab, Utah, an unexpectedly large amount of geologic detail is being encountered. The

biggest problem in such photointerpretation remains the ability to transfer the interpretive geologic information from the original photographs to a suitable base map. In many cases the geologic detail is greater than can be mapped at a scale of 1:250,000.

#### Planned Activities for Current Month

Research in November will continue on those projects outlined above.

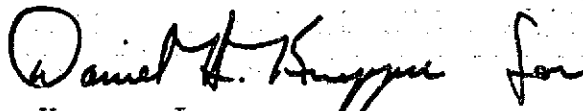
#### Travel

There were two manned-days of travel incurred during October in support of field work.

Short periods of field work during November are anticipated, as weather and schedules permit.

#### Outlook and Recommendation

Progress continues to be satisfactory and the project should be completed on schedule.

 Daniel H. Krugger for

Keenan Lee  
Principal Investigator